



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,620	02/19/2002	Irak Ben-Gal	01/21716	9559

7590 08/28/2006

Martin D. Moynihan
PRTSI, Inc.
P. O. Box 16446
Arlington, VA 22215

EXAMINER

SHARON, AYAL I

ART UNIT	PAPER NUMBER
----------	--------------

2123

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/076,620	Applicant(s) BEN-GAL ET AL.	
	Examiner Ayal I. Sharon	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/3/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. Claims 1-57 of U.S. Application 10/076,620, originally filed on 02/19/2002, are currently pending.
2. The application claims priority to U.S. Priority Application 60/269,344, filed 02/20/2001.
3. Applicants' amendment filed 6/27/06 has amended independent claims 1, 19, and 51, and added new claims 52-57.

Claim Objections

4. Claims 21 and 22 are objected to because of the following informalities:
"prestored" should be "pre-stored". Merriam-Webster's Collegiate Dictionary, 10th Ed., © 2001, does not contain an entry for "prestored".
5. Applicants have amended claim 19 to replace "prestored" with "reference", but have not amended claims 21 and 22. Claims 21 and 22 now have a lack of antecedent basis problem. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 21 and 22 recite the limitation "said prestored model". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. **Claims 1-14, and 19-40, and 44-57 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

10. The instant claims also lack a concrete, useful, and tangible result.

11. One may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent "in practical effect be a patent on the [idea, law of nature or natural phenomena] itself." Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

12. The fundamental test for patent eligibility is to determine whether the claimed invention produces a "useful, concrete and tangible result." See State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F. 3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) and AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999). In these decisions, the court found that the claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result."

13. See State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. ("[T]he transformation of data, representing discrete dollar amounts, by a machine

through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result' – a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades").

14. See also AT&T, 172 F.3d at 1358, 50 USPQ2d at 1452 (Claims drawn to a long-distance telephone billing process containing mathematical algorithms were held patentable subject matter because the process used the algorithm to produce a useful, concrete, tangible result - a primary inter-exchange carrier ("PIC") indicator - without preempting other uses of the mathematical principle).
15. In the instant application, on the other hand, the amended independent claims 1, 19, and 51 merely "determine if there has been a statistical change" between two mathematical models ("trees").
16. This result is not tangible, because it is not necessarily output in a tangible form.
17. The claims also do not recite a use for the result. In effect, the claims attempt to patent every "substantial practical application" of the claimed mathematical algorithm.
18. Therefore, the claimed invention therefore does not produce a result that is useful or tangible.

Claim Interpretations

19. Examiner interprets that Claims 19-50 are tangibly embodied in a computer, in light of the “prestored model” limitation recited in claim 19. Examiner interprets that the “prestored model” implies storage in a mechanical device, as opposed to recorded in a book or on a piece of paper. See In re Lowry, 32 USPQ 2d 1031 (Fed.Cir. 1994); In re Bernhart, 163 USPQ 611, 615 (CCPA 1969).

Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

21. The prior art used for these rejections is as follows:

- a. Ben-Gal, I. et al. “An Information Theoretic Approach for Adaptive Monitoring of Processes.” ASI2000, The Annual Conf. of ICIMS- NOE and IIMB. 2000. (“**Ben-Gal**”).

22. Examiner notes that the Ben-Gal reference has a different inventive entity than the instant application.

23. Examiner also notes that according to Applicants’ IDS submitted on 5/3/2006, the publication date of the Ben-Gal reference is “2000”.

24. The following reference indicates that the publication date of the Ben-Gal reference is September 18-20, 2000:

"Advanced Summer Institute 2000: The Annual Conference of the ICIMS-NOE (E.P. 23447)". Printed 8/23/06.

<http://www.lar.ee.upatras.gr/icims/asi/asi2000/asi2000.htm>

25. The claim rejections are hereby summarized for Applicants' convenience. The detailed rejections follow.

26. Claims 1-24 and 30-57 are rejected under 35 U.S.C. 102(a) as being anticipated by Ben-Gal.

27. In regards to Claim 1, Ben-Gal teaches the following limitations:

1. Apparatus embodied in a computer for building a stochastic model of a data sequence, said data sequence comprising time related symbols selected from a finite symbol set, the apparatus comprising:

an input for receiving said data sequence,

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In our case, the string x^n represents sequenced values of buffer levels.")

a tree builder for expressing said symbols as a series of counters within nodes, each node having a counter for each symbol, each node having a position within said tree, said position expressing a symbol sequence and each counter indicating a number of its corresponding symbol which follows a symbol sequence of its respective node, and

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "The details of the context algorithm, which constructs the context tree ... can be found in /7,8/.")

a tree reducer for reducing said tree to an irreducible set of conditional probabilities of relationships between symbols in said input data sequence.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain S terminal contexts ...")

a comparator for comparing said reduced tree with a reference tree obtained in advance of said receiving sequential data, thereby to

determine whether there has been a statistical change between said two trees.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "Kullback Leibler proposed the KL measure of relative 'distance' between any distribution to a reference distribution /5/."

See also Ben-Gal: especially section 4, "Numerical Example", which teaches that "The proposed SPC methodology was applied to monitor the states of the buffer and to indicate possible changes in the characteristics of the production system.")

28. In regards to Claim 2, Ben-Gal teaches the following limitations:

2. Apparatus according to claim 1, said tree reducer comprising a tree pruner for removing from said tree any node whose counter values are within a threshold distance of counter values of a preceding node in said tree.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain *S terminal contexts ...*")

29. In regards to Claim 3, Ben-Gal teaches the following limitations:

3. Apparatus according to claim 2, wherein said threshold distance and tree construction parameters are user selectable.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain *S terminal contexts ...*")

30. In regards to Claim 4, Ben-Gal teaches the following limitations:

4. The apparatus of claim 3, wherein said user selectable parameters further comprise a tree maximum depth.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain *S terminal contexts ...*")

31. In regards to Claim 5, Ben-Gal teaches the following limitations:

5. The apparatus of claim 3, wherein said user selectable parameters further comprise an algorithm buffer size.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In our case, the string x^n represents sequenced values of buffer levels.")

32. In regards to Claim 6, Ben-Gal teaches the following limitations:

6. The apparatus of claim 3, wherein said user selectable parameters further comprise values of pruning constants.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In our case, the string x^n represents sequenced values of buffer levels.")

33. In regards to Claim 7, Ben-Gal teaches the following limitations:

7. The apparatus of claim 3, wherein said user selectable parameters further comprise a length of input sequences.

(See Ben-Gal: especially section 4, "Numerical Example", which teaches that "The KL statistic was calculated for each data record (run) of length $n=200$... At a certain stage of the experiment, new values of production probabilities ... were selected to represent an alteration in the process characteristics.")

34. In regards to Claim 8, Ben-Gal teaches the following limitations:

8. The apparatus of claim 3 wherein said user selectable parameters further comprise an order of input symbols.

(See Ben-Gal: especially section 4, "Numerical Example", which teaches that "The KL statistic was calculated for each data record (run) of length $n=200$... At a certain stage of the experiment, new values of production probabilities ... were selected to represent an alteration in the process characteristics.")

35. In regards to Claim 9, Ben-Gal teaches the following limitations:

9. Apparatus according to claim 2, wherein said tree reducer further comprises a path remover operable to remove any path within said tree that is a subset of another path within said tree.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain S terminal contexts ...")

36. In regards to Claim 10, Ben-Gal teaches the following limitations:

10. Apparatus according to claim 1, wherein said sequential data is a string comprising consecutive symbols selected from a finite set.

(See Ben-Gal: especially section 4, "Numerical Example", which teaches that "The KL statistic was calculated for each data record (run) of length $n=200$... At a certain stage of the experiment, new values of production probabilities ... were selected to represent an alteration in the process characteristics.")

37. In regards to Claim 11, Ben-Gal teaches the following limitations:

11. The apparatus of claim 10, further comprising an input string permutation limit for carrying out permutations and reorganizations of the input string using external information about a process generating said string.

(See Ben-Gal: especially section 4, "Numerical Example", which teaches that "The KL statistic was calculated for each data record (run) of length $n=200$ and its values were compared with the derived upper control limit ...")

38. In regards to Claims 12-18, Examiner interprets the Applicants' claims to be directed to mere intended uses of the invention.

39. In regards to Claim 19, Ben-Gal teaches the following limitations:

19. Apparatus embodied in a computer for determining statistical consistency in time sequential data, the apparatus comprising

a sequence input for receiving sequential data,

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In our case, the string x^n represents sequenced values of buffer levels.")

a stochastic modeler for producing at least one stochastic model from at least part of said sequential data,

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "The details of the context algorithm, which constructs the context tree ... can be found in /7,8/."

See also Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain S terminal contexts ...")

and a comparator for comparing said sequential stochastic model with a reference model, reference model obtained in advance of said receiving sequential data, thereby to determine whether there has been a statistical

change in said data.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "Kullback Leibler proposed the KL measure of relative 'distance' between any distribution to a reference distribution /5/."

See also Ben-Gal: especially section 4, "Numerical Example", which teaches that "The proposed SPC methodology was applied to monitor the states of the buffer and to indicate possible changes in the characteristics of the production system.")

40. In regards to Claim 20, Ben-Gal teaches the following limitations:

20. Apparatus according to claim 19, wherein said stochastic modeler comprises:

a tree builder for expressing said symbols as a series of counters within nodes, each node having a counter for each symbol, each node having a position within said tree, said position expressing a symbol sequence and each counter indicating a number of its corresponding symbol which follows a symbol sequence of its respective node, and

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "The details of the context algorithm, which constructs the context tree ... can be found in /7,8/."

a tree reducer for reducing said tree to an irreducible set of conditional probabilities of relationships between symbols in said input data sequence.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain *S terminal contexts* ...")

41. In regards to Claim 21, Ben-Gal teaches the following limitation:

21. Apparatus according to claim 19, said prestored model being a model constructed using another part of said time-sequential data.

(See Ben-Gal: especially section 4, "Numerical Example", which teaches that "The KL statistic was calculated for each data record (run) of length $n=200$... At a certain stage of the experiment, new values of production probabilities ... were selected to represent an alteration in the process characteristics.")

42. In regards to Claim 22,

22. Apparatus according to claim 19, said comparator comprising a statistical processor for determining a statistical distance between said stochastic model and said prestored model.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In this paper, the KL measure is applied to detect the relative distance between the unknown monitored distribution which is estimated at time t ...")

See also Ben-Gal: especially section 4, "Numerical Example", which teaches that "The KL statistic was calculated for each data record (run) of length $n=200$...")

43. In regards to Claims 23-24, they are rejected on the same grounds as claim 22.

44. In regards to Claims 30-38, the claims are identical to claims 3-11, and therefore are rejected on the same grounds.

45. In regards to Claims 39-43, the claims are identical to claims 12, 14-16, and 18, and therefore are rejected on the same grounds.

46. In regards to claims 44-47, Examiner interprets the Applicants' claims to be directed to mere intended uses of the invention.

47. In regards to Claim 48, Weinberger teaches the following limitations:

48. Apparatus according to claim 22, wherein said data sequence comprises time sequential image data sequences said model being usable to determine a statistical distance therebetween.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "Kullback Leibler proposed the KL measure of relative 'distance' between any distribution to a reference distribution /5/.")

Examine finds the intended use of "image data" to be a mere intended use.

48. In regards to claims 49-50, Examiner interprets the Applicants' claims to be directed to mere intended uses of the invention.

49. In regards to Claim 51, Ben-Gal teaches the following limitations:

51. A computer implementing a method for building a stochastic model of a data sequence, said data sequence comprising time related symbols selected from a finite symbol set, the method comprising:

receiving said data sequence,

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In our case, the string x' represents sequenced values of buffer levels.")

expressing said symbols as a series of counters within nodes, each node having a counter for each symbol, each node having a position within said tree, said position expressing a symbol sequence and each counter indicating a number of its corresponding symbol which follows a symbol sequence of its respective node,

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "The details of the context algorithm, which constructs the context tree ... can be found in /7,8/.")

reducing said tree to an irreducible set of conditional probabilities of relationships between symbols in said input data sequence, thereby to generate a stochastic model of said sequence, and

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain S terminal contexts ...")

comparing said stochastic model with a previously obtained reference model, thereby to determine if there has been a statistical change between the two models.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "Kullback Leibler proposed the KL measure of relative 'distance' between any distribution to a reference distribution /5/.")

See also Ben-Gal: especially section 4, "Numerical Example", which teaches that "The proposed SPC methodology was applied to monitor the states of the buffer and to indicate possible changes in the characteristics of the production system.")

50. In regards to Claim 52, Ben-Gal teaches the following limitations:

52. (New) The apparatus of claim 1, wherein said tree reducer is further configured to update said reference tree according to data in said reduced tree.

Art Unit: 2123

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "In the second stage, the tree is pruned to obtain *S terminal contexts* (i.e., leafs and partial leafs), which are the shortest contexts satisfying the above definition and act as states.")

51. In regards to Claim 53, Ben-Gal teaches the following limitations:

53. (New) The apparatus of claim 1, wherein said trees represent non homogeneous data.

(See Ben-Gal: especially section 3, "Suggested Method", which teaches that "A context tree is a compact description of a sequence of data generated by a Finite State Machine." Examiner interprets that this data will not be a constant value, and therefore will be "non homogeneous".)

52. In regards to Claims 54-55, and 56-57, they are rejected on the same grounds as claims 52-53.

Claim Rejections - 35 USC § 103

53. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

54. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 2123

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

55. The prior art used for these rejections is as follows:

- a. Ben-Gal, I. et al. "An Information Theoretic Approach for Adaptive Monitoring of Processes." ASI2000, The Annual Conf. of ICIMS- NOE and IIMB. 2000. ("**Ben-Gal**").
- b. Weinberger, M.J., Ben-Gal J.J., et al. "A Universal Finite Memory Source." IEEE Transactions on Information Theory. May 1995. Vol. 41, Issue 3, pp.643-652. (Hereinafter "**Weinberger**").
- c. Naranjo, S.E. et al. "Resampling Software for Analysis and Validation of Enumerative and Binomial Sampling Plans." Undated. Printed Dec. 9 2005. <http://www.wcrl.ars.usda.gov/software/rvspman.html>. (Hereinafter "**Naranjo**").

56. Examiner notes that the Ben-Gal reference has a different inventive entity than the instant application.

57. Examiner also notes that the Ben-Gal reference was disclosed by the Applicants in the IDS submitted on 5/3/2006. The Applicants disclosed the publication date of these references as "2000". Examiner therefore could not determine if the reference is old enough to qualify as 35 U.S.C. 102(b) prior art.

58. The claim rejections are hereby summarized for Applicants' convenience. The detailed rejections follow.

59. Claim 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-Gal in view of Naranjo.

60. In regards to Claim 25, Ben-Gal does not expressly teach the following limitations:

25. Apparatus according to claim 22, wherein said statistical distance comprises an SPRT statistic.

Naranjo, on the other hand, expressly teaches (see p.8) that Wald's SPRT statistic dates back to 1947.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Ben-Gal with those of Naranjo to use an SPRT statistic instead of the KL statistic.

The suggestion for doing so is found in Naranjo, which teaches that Wald's SPRT was an old and well known statistical distance measure at the time the invention was made, and moreover, that its use as a threshold value was also old and well known.

61. Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-Gal in view of Weinberger.

62. In regards to Claim 26, Ben-Gal does not expressly teach the following limitations:

26. Apparatus according to claim 22, wherein said statistical distance comprises an MDL statistic.

On the other hand, Weinberger teaches the use of the "MDL principle" on p.646, right column, last paragraph.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Ben-Gal with those of Weinberger in order to describe the context algorithm in more detail.

The suggestion for doing so is found in Ben-Gal, which expressly teaches that "The details of the context algorithm, which constructs the context tree ... can be found in /7,8/", where "7" is the Weinberger reference.

63. In regards to Claim 27, Ben-Gal does not expressly teach the following limitations:

27. Apparatus according to claim 22, wherein said statistical distance comprises a Multinomial goodness of fit statistic.

On the other hand, Weinberger teaches the use of the fitting data on p.644, left column, second paragraph, and p.644, right column, Section II, last paragraph. See also p.648, Section IV, first paragraph.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Ben-Gal with those of Weinberger in order to describe the context algorithm in more detail.

The suggestion for doing so is found in Ben-Gal, which expressly teaches that "The details of the context algorithm, which constructs the context tree ... can be found in /7,8/", where "7" is the Weinberger reference.

64. In regards to Claim 28, Ben-Gal does not expressly teach the following limitations:

28. Apparatus according to claim 22, wherein said statistical distance comprises a Weinberger Statistic.

On the other hand, Weinberger expressly teaches the use of a context selection rule (see p.647, right column, Eq.15) that use a statistic s_i that “denotes the longest path in the intersection of T_i and T_i . Examiner interprets that this corresponds to the claimed “Weinberger Statistic.”

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Ben-Gal with those of Weinberger in order to describe the context algorithm in more detail.

The suggestion for doing so is found in Ben-Gal, which expressly teaches that “The details of the context algorithm, which constructs the context tree ... can be found in /7,8/”, where “7” is the Weinberger reference.

65. In regards to Claim 29, Ben-Gal does not expressly teach the following limitations:

29. Apparatus according to claim 20, said tree reducer comprising a tree pruner for removing from said tree any node whose counter values are within a threshold distance of counter values of a preceding node in said tree.

On the other hand, Weinberger expressly teaches the use of a context selection rule (see p.647, right column, Eq.15) that use a statistic s_i that “denotes the longest path in the intersection of T_i and T_i . Examiner interprets that this corresponds to the claimed “threshold distance”.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the teachings of Ben-Gal with those of Weinberger in order to describe the context algorithm in more detail.

The suggestion for doing so is found in Ben-Gal, which expressly teaches that "The details of the context algorithm, which constructs the context tree ... can be found in /7,8/", where "7" is the Weinberger reference.

Response to Amendment

Re: Information Disclosure Statement

66. The English language translation presented by the Applicants in the IDS filed on 5/3/06, of the Hebrew language reference originally presented by the Applicants in the IDS filed on 10/7/02, has been accepted. The objection to the IDS has been withdrawn.

Re: Double Patenting

67. The Terminal Disclaimer filed on 6/27/2006 has been accepted. The Double Patenting rejections are therefore withdrawn.

Re: Claim Objections

68. Applicants have amended claim 19 to replace "prestored" with "reference", but have not amended claims 21 and 22. Claims 21 and 22 now have a lack of antecedent basis problem. Appropriate correction is required.

Re: Claim Rejections - 35 USC § 101

69. Applicants' amendments to claims 1, 19, and 51 have overcome the issues of unembodied computer software, and abstract mathematical algorithm, but have introduced new 35 USC § 101 issues. All claims are rejected under 35 USC § 101 for lack of a concrete, useful, tangible result.

Re: Claim Rejections - 35 USC § 103

70. Examiner finds that Applicants amendments to independent claims 1, 19 and 51, in the amendment dated 6/27/2006, as well as the arguments presented in the same amendment, overcome the previously presented prior art rejections.

71. Therefore, the previously presented 35 USC § 103 rejections are withdrawn.

72. New 35 USC § 102 rejections have been added in light of the translated Ben-Gal reference submitted in the IDS dated 5/3/06.

Conclusion

73. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a bi-week, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

USPTO
P.O. Box 1450
Alexandria, VA 22313-1450

or hand carried to:

USPTO
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Art Unit: 2123

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon
Art Unit 2123
August 23, 2006

 8/23/06
PAUL RODRIGUEZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100